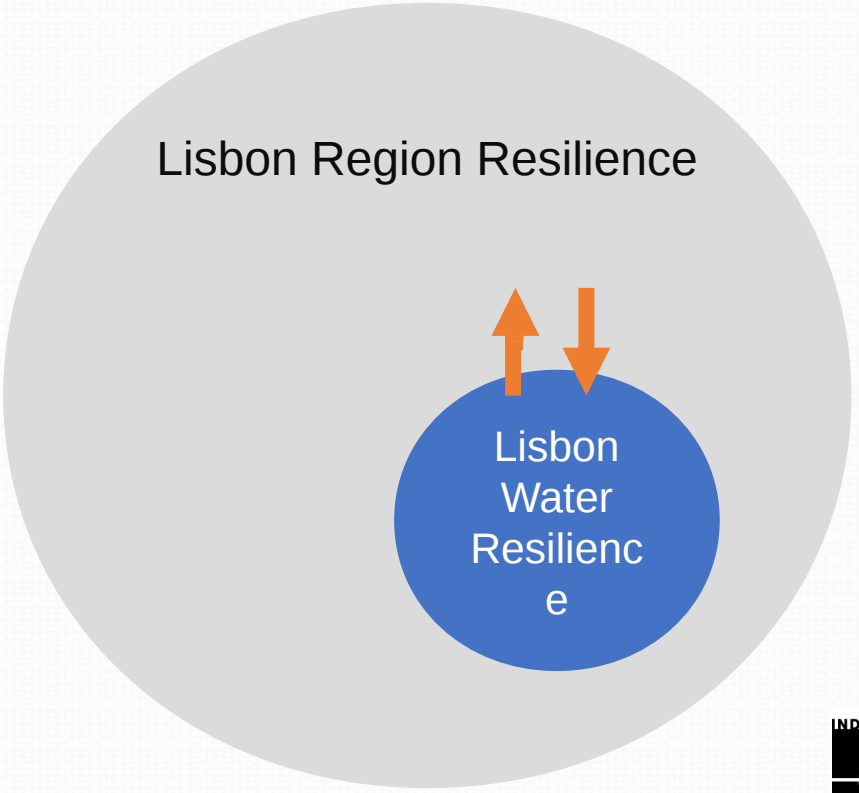
Agenda

1. Preliminary Resilience Index
2. **Water Resilience Assessment Model**



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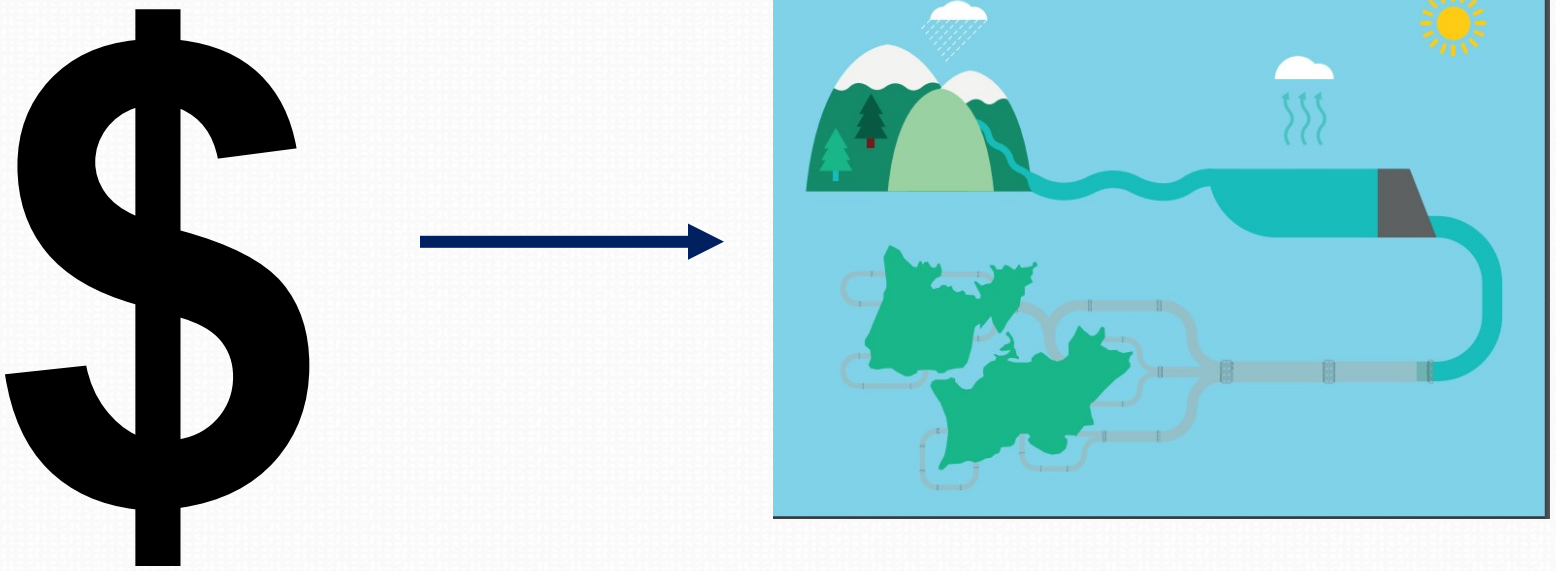
Crises are often invisible



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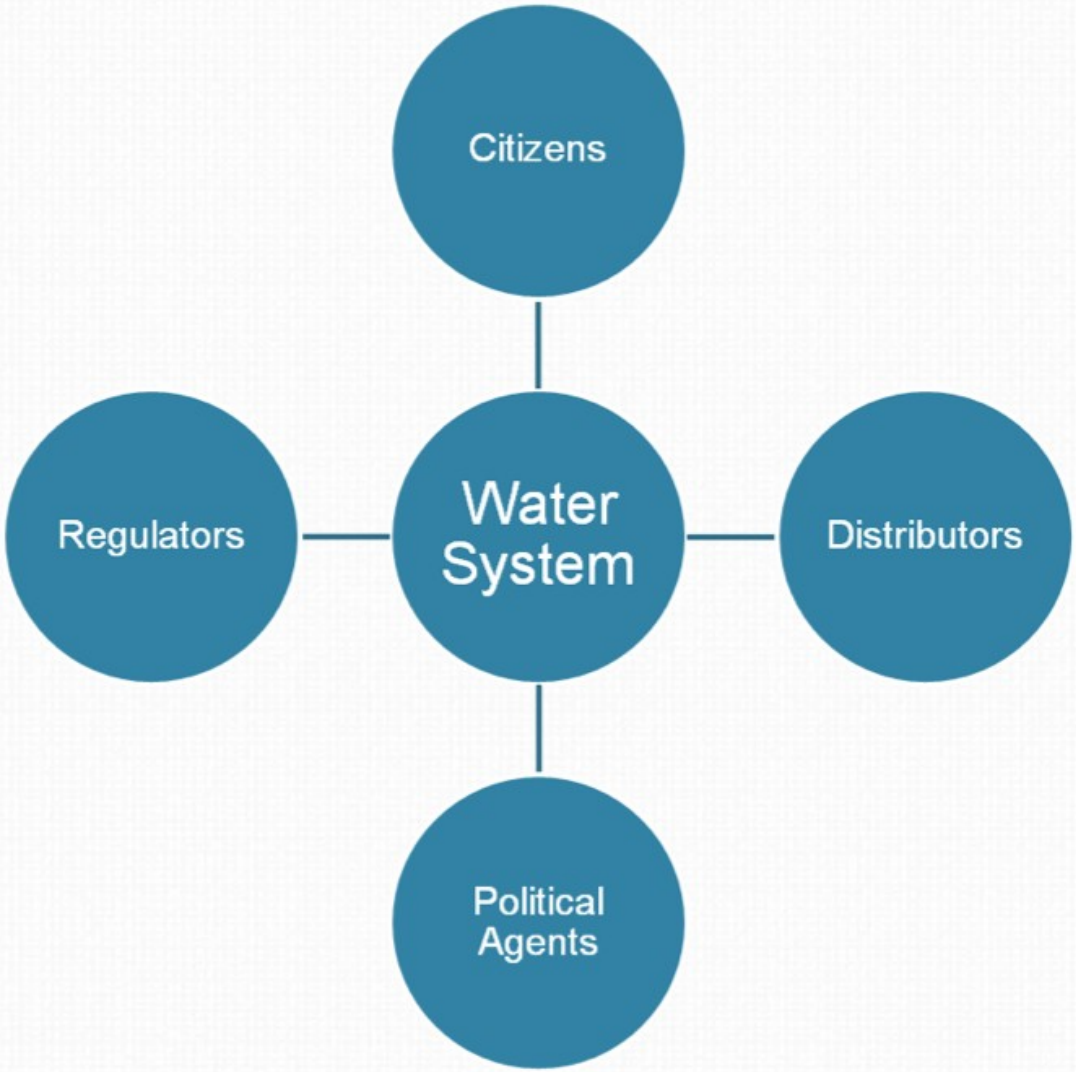
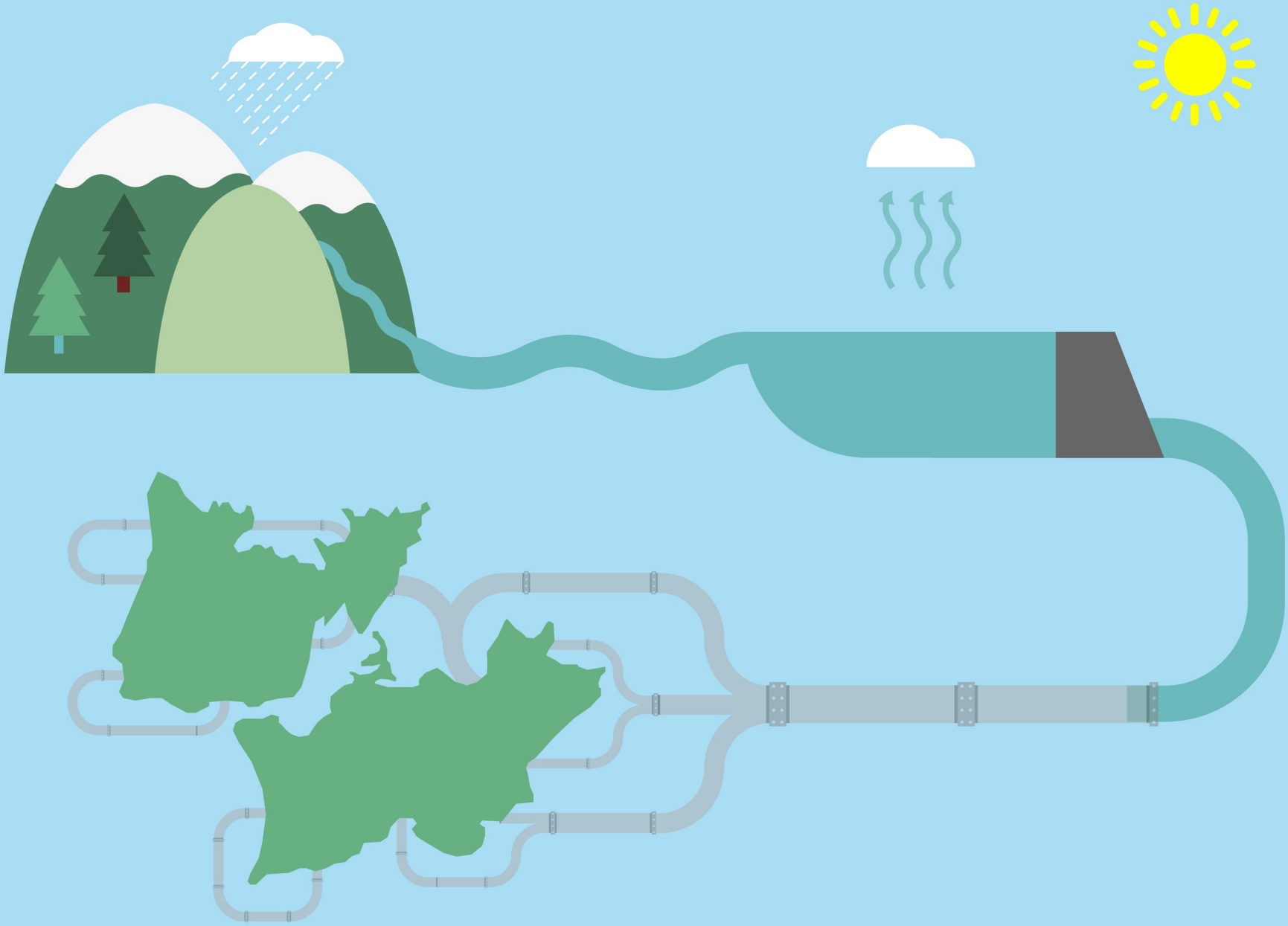
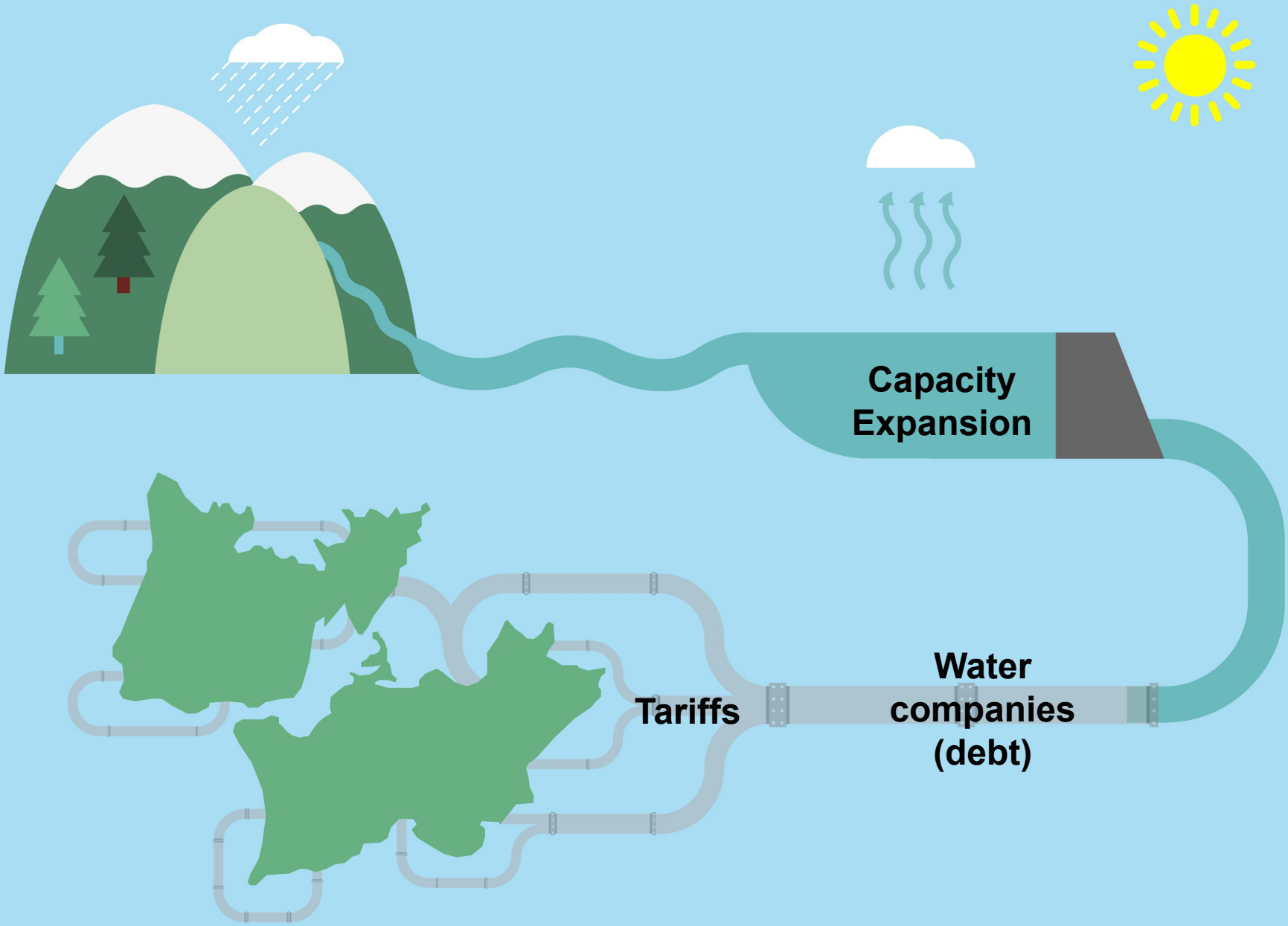
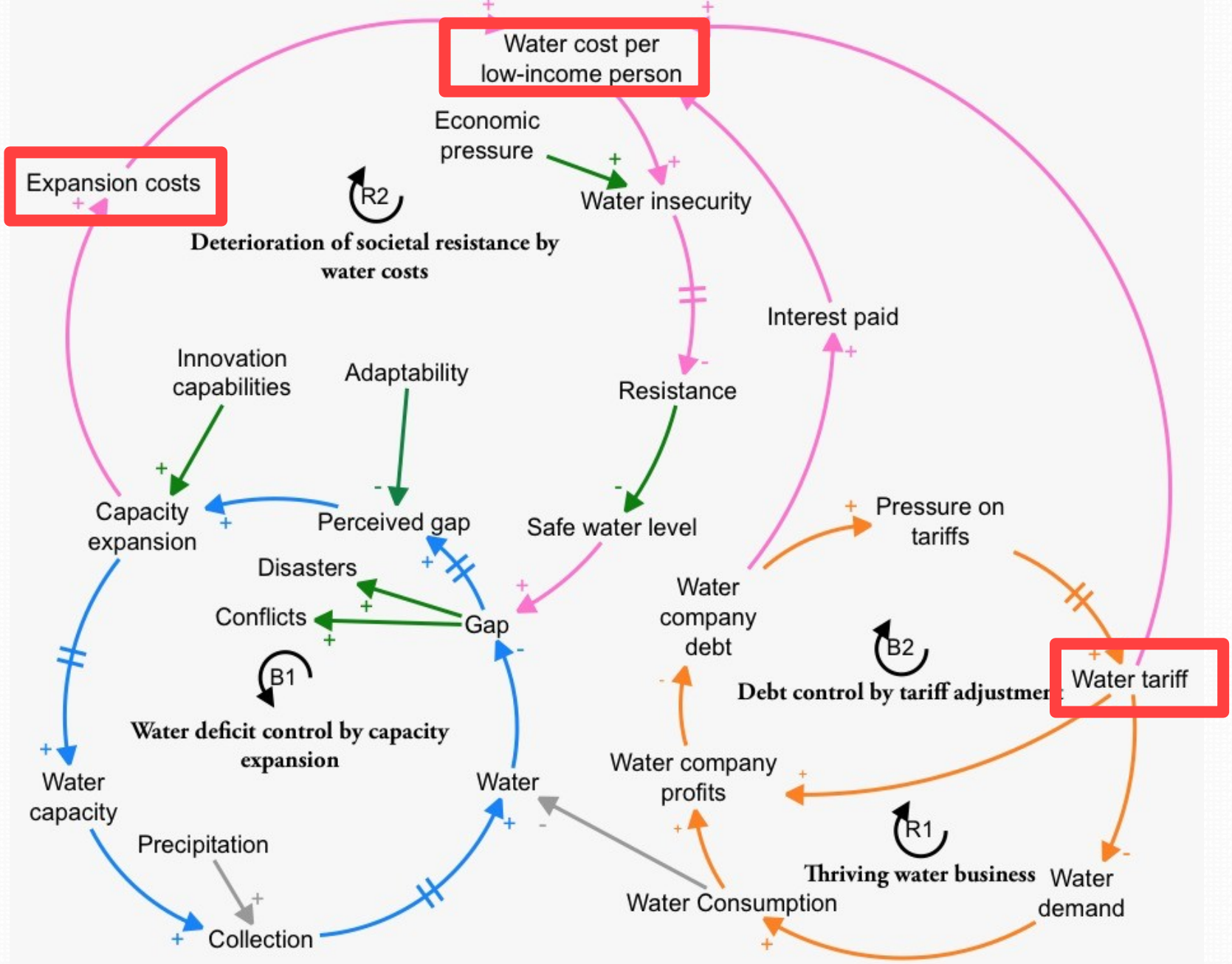
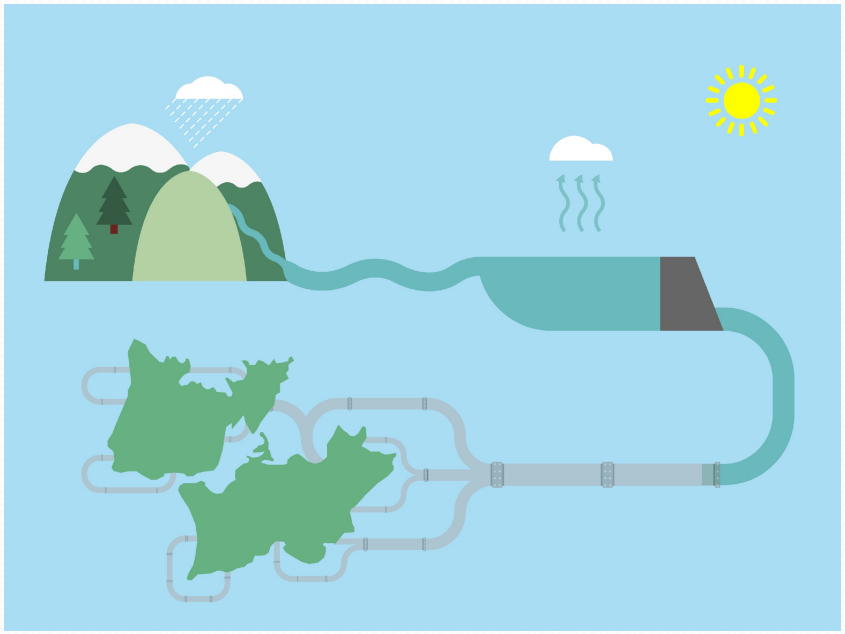

Citizens
Regulators
Water System
Distributors
Political Agents



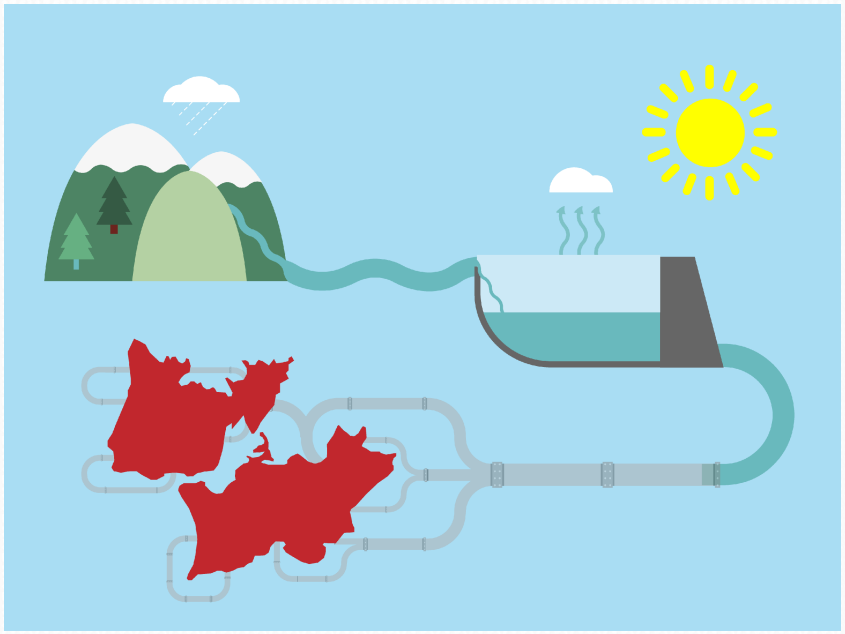

Capacity
Expansion
Tariffs
Water
companies
(debt)


Water cost per low-income person
Economic pressure
Expansion costs
R2
Deterioration of societal resistance by water costs
Water insecurity
Interest paid
Innovation capabilities
Adaptability
Resistance
Capacity expansion
Perceived gap
Safe water level
Pressure on tariffs
Disasters
Conflicts
Gap
Water company debt
B2
Debt control by tariff adjustmer
Water tariff
B1
Water deficit control by capacity expansion
Water capacity
Water
Water company profits
Precipitation
R1
Thriving water business
Water Consumption
Water demand
Collection

BAU



FORCED CRISIS



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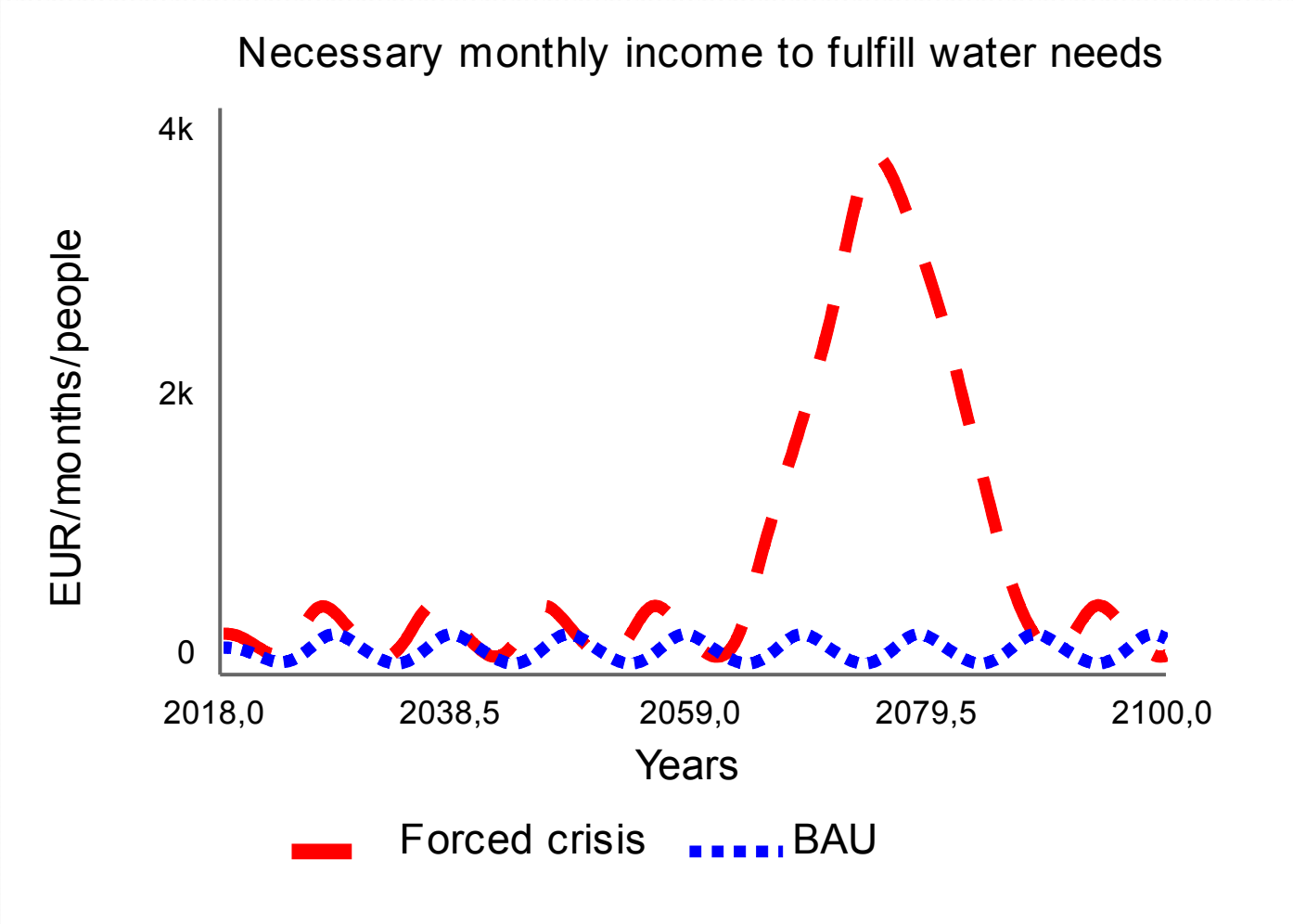
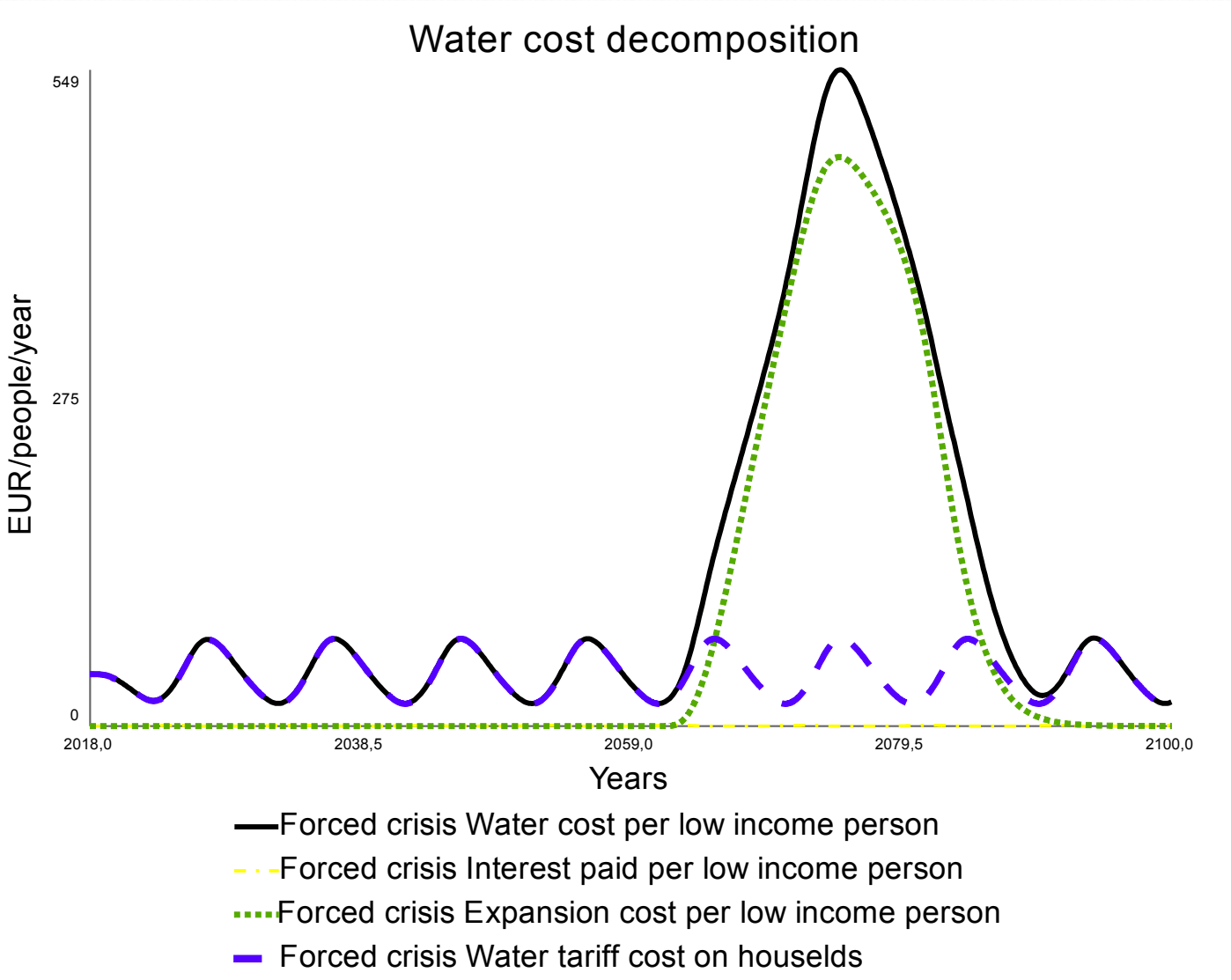

Necessary monthly income to fulfill water needs
4k
2k
0
EUR/months/people
2018,0
2038,5
2059,0
2079,5
2100,0
Years
Forced crisis
BAU



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Key drivers

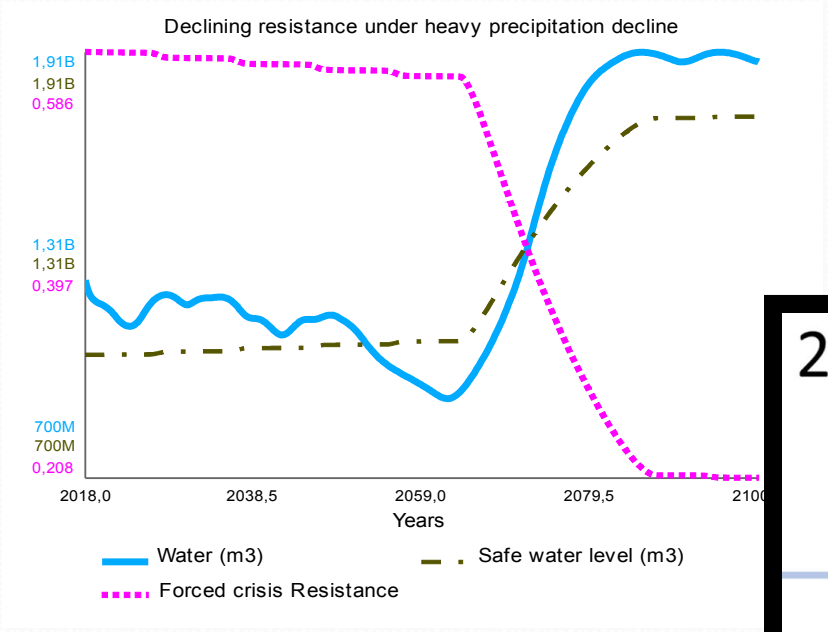
Precipitation (**climate change**)

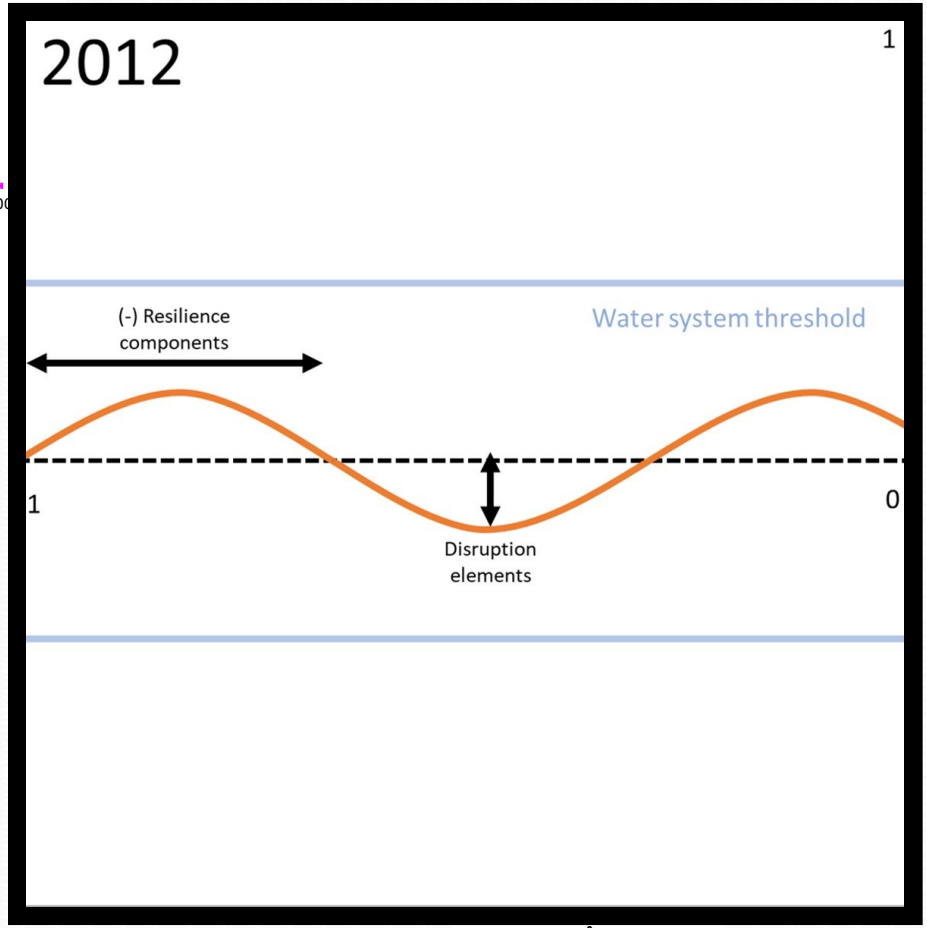
National water system **centralization** (‘harmonização tarifária’)

Political process: delay, resistance to change, aggressiveness

Risk concentration due to **large dams** (Castelo de Bode)

Dependency of **EU funding**





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Insights

Benefits of introducing a system dynamics model

- retrospective to prospective
- static to dynamic
- behaviour to structure (top-down to bottom-up)

Benefits of departing from an index

- panarchical relationships represented in the model

Help us build a powerful tool!

Potential for participation

- Model conception
- Interactive tools

Potential to expand

- Risks (housing, ageing)
- Regions

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Thank You

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References

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Walker, B. & Holling, C.S. & Carpenter, S. & Kinzig, A. (2004). Resilience, Adaptability and Transformability in Social-Ecological Systems. ECOLOGY AND SOCIETY. 9.